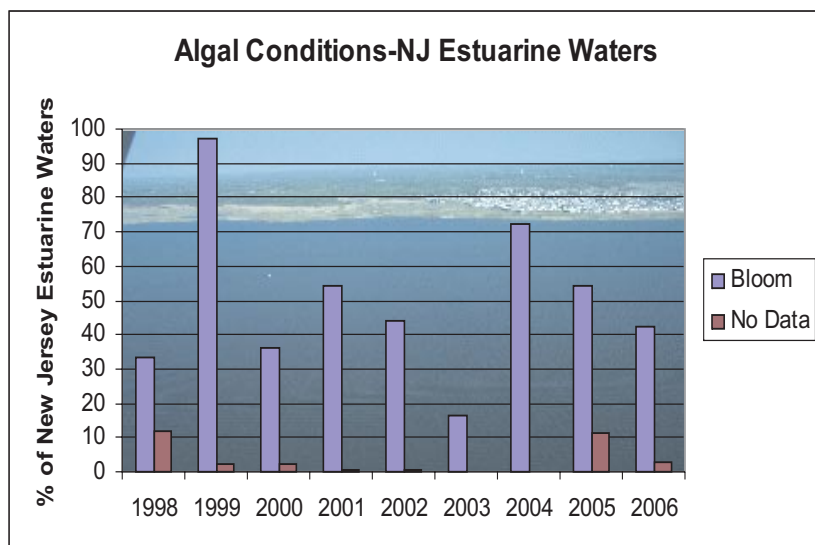


Estuarine Algal Conditions

Background

Chlorophyll a is a plant pigment used to determine the amount of algal biomass present in a body of water. Currently, DEP's Water Monitoring and Standards collects 960 water samples per year, covering all estuarine waters from the Raritan Bay to the Delaware Bay up to the points beyond which tidal influence is not observed (head of tide). Excessive amounts of chlorophyll a indicate an algal bloom that may reduce water clarity and may result in depleted dissolved oxygen levels. Algal bloom conditions have been defined by routine chlorophyll measurements.¹



Using this definition of algal blooms based on chlorophyll a measurements, the chart above shows the percent of New Jersey's estuarine waters that experienced bloom conditions over a nine-year period.

Status and Trend

As can be seen from the chart above, bloom conditions can vary dramatically from year to year, ranging from a low of 15 % in 2003 to over 95% in 1999. Among the factors that could be responsible for this trend would be interannual changes in rainfall, offshore phytoplankton conditions, changes to nutrient loading into these coastal waters, the meteorological factors wind and cloud cover, and air and water temperatures.

Outlook and Implications

In general, algal blooms tend to occur in areas with nutrient over-enrichment. In the long term, efforts to reduce anthropogenic nutrient loads to New Jersey's coastal waters, combined with a better understanding of the effects of meteorological and oceanographic conditions, should help us minimize the occurrence of algal blooms.

References

¹ Cosper, E.M. 1995. Assessment of Historical Phytoplankton Characteristics and Bloom Phenomena in the New York Harbor Estuarine and New York Bight Ecosystems. Preliminary Report. E.M. Cosper, Coastal and Environmental Studies, Inc., Bohemia, NY. May 4, 1995.

More Information

Additional information can be obtained by contacting DEP's Water Monitoring and Standards at (609) 748-2000 or by visiting www.nj.gov/dep/wms/bmw.